

A COMPOSITE BASKETRelated Applications

[0001] The present application claims priority to U.S. Provisional Application having Serial Number 60/425,956 filed on November 12, 2002, the entire contents of which is incorporated herein by reference.

Background of the InventionField of the Invention

[0002] The present invention relates to the field of quick-assembly baskets, such as for waste or recyclables. More specifically, the present invention is for a composite basket that is quick to assemble, can be economically stored and shipped in a space-saving flattened state, and is very lightweight.

Description of the Related Art

[0003] Waste baskets for paper and other household or office refuse are available in a broad range of sizes and shapes. A typical waste basket is molded plastic or may be formed of other sheet materials to form a generally open container defining an interior waste compartment.

[0004] While the conventional waste basket is relatively convenient and simple to manufacture and use, there are drawbacks with regards to transporting, storing, and stacking one or more baskets. In particular, conventional waste baskets are relatively bulky, which adversely affects the portability and ease of storage, a factor which is considerable for a user who relocates frequently or where space is scarce. Further, any reduction of material usage in a waste basket that can be made without reducing its waste storage capacity would be desirable as a cost savings measure.

[0005] In light of these and other needs, embodiments of the present invention provide a composite basket that can be packaged and stacked in one configuration, and then assembled and used in a second configuration.

Summary

[0006] According to one embodiment, a basket includes one or more side panels each having an upper edge, a lower edge, a first side edge and a second side edge. The first side edge is in engaging relation with a second side edge such that the one or more side panels form a continuous basket side wall. A bottom frame is configured for secure attachment to the side panel lower edge. An upper ring is configured for secure attachment to the side panel upper edge. The basket may further comprise at least a first side panel and a second side panel wherein the first side panel includes a tab on the first side edge and the second panel includes a slot on the second edge configured to receive the tab from the first side panel. The side panels may be formed from a bendable material. One way of attaching the bottom frame to the side panel lower edge is by forming a groove in the bottom frame configured to accept and securely hold the side panel lower edge. Likewise, the upper ring can define a groove configured to accept and securely hold the side panel upper edge. Finally, the bottom frame is optionally configured with a lock and the side panel lower edge is configured with a hole configured to engage the lock to securely hold the side panel to the bottom frame.

[0007] According to another embodiment, a basket is formed from one or more flexible side panels, each side panel having an upper edge and a lower edge, with each of the upper edge and lower edge having one or more holes formed adjacent thereto. The side panels also each have a male side edge having tabs protruding therefrom, and a female side edge having slots formed therein configured to receive the tabs. A bottom frame defines a longitudinal groove configured to receive the side panel lower edge. The bottom frame further has an engagement structure configured for cooperation with the holes formed in the side panel lower edge to securely hold the side panel lower edge within the bottom frame longitudinal groove. An upper ring defines a longitudinal groove configured to receive the side panel upper edge. The upper ring further has an engagement structure configured for cooperation with the holes formed in the side panel upper edge to securely hold the side panel upper edge within the upper ring longitudinal groove. The basket may utilize two or more side panels. In one embodiment, the side panel male side edge comprises one or more lock tabs configured to be securely inserted into a corresponding slot that inhibits subsequent

withdrawal of the lock tab from the slot. The lock tab may be wider than the slot to inhibit subsequent withdrawal.

[0008] A method of assembling a basket comprises the steps of providing one or more sheets of bendable material, each sheet having a first edge and a second edge, wherein each edge is configured with engagement structure such that the first edge can be engaged with the second edge. The first edge is engaged with the second edge to define a closed generally cylindrical side wall. A bottom frame is provided and is configured to engage the one or more sheets of bendable material. The one or more sheets of bendable material is attached to the bottom frame. The method may optionally further include the step of providing an upper ring and attaching the upper ring to the one or more sheets of bendable material.

[0009] In the following description, reference is made to the accompanying drawings which form a part of this written description which show, by way of illustration, specific embodiments in which the invention can be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention. Where possible, the same reference numbers will be used throughout the drawings to refer to the same or like components. Numerous specific details are set forth in order to provide a thorough understanding of the present invention; however, it should be obvious to one skilled in the art that the present invention may be practiced without the specific details or with certain alternative equivalent devices and methods to those described herein. In other instances, well-known methods, procedures, components and devices have not been described in detail so as not to unnecessarily obscure aspects of the present invention.

Brief Description of the Drawings

[0010] FIGURE 1 illustrates a plan view of a side panel for use with embodiments of the present invention.

[0011] FIGURE 2 is a close-up plan view of the side panel of FIGURE 1.

[0012] FIGURE 3 is a plan view of two side panels such as the ones illustrated in FIGURES 1 and 2 in cooperative engagement.

[0013] FIGURE 4 is a perspective view of two side panels engaged to form side walls of a basket.

[0014] FIGURE 5 is a perspective top view of a bottom frame.

[0015] FIGURE 6 is a bottom perspective view of a bottom frame.

[0016] FIGURE 7 is a close-up perspective view of a locking wedge of the bottom frame.

[0017] FIGURE 8 is a perspective view illustrating the bottom frame attached to the assembled side walls.

[0018] FIGURE 9 is a perspective view of an upper ring configured to cooperate with the basket side walls.

[0019] FIGURE 10 is a close-up perspective view of clips formed on the upper ring.

[0020] FIGURE 11 is a top plan view of the clips of FIGURE 10.

[0021] FIGURE 12 is a perspective view of an assembled basket.

Detailed Description of Preferred Embodiments

[0022] With reference to FIGURES 1-4, a basket side panel 32 is preferably shaped to be substantially rectangular and has an opposing top edge 34 and a bottom edge 36, and opposing side edges 38, 40. Of course, the basket side panel 32 could be configured in any one of many geometrical shapes, including a square, trapezoid, parallelogram, or may have non linear edges. In one preferred embodiment, the basket side panel 32 is formed of a pliable plastic, such as polyurethane, polyethylene, polypropylene, or any of a number of other easily deformable materials.

[0023] In the embodiments of FIGURES 1-4, a pair of cooperating basket side panels 32 are connected together to form a substantially cylindrical basket 42. Of course, the same could be accomplished with only 1 side panel, or with more than 2 side panels as will be apparent to those of skill in the art. In addition, rather than having a bendable side wall 32, it could be configured with fold lines or hinges defining segments that are moveable relative to other segments. In this type of embodiment, the side wall 32 could be bent or folded to shape any of a number of polygons. However, in one preferred embodiment, two cooperating side panels 32 are used in cooperation and are bent to form a circular or oval

cylinder. Each side wall 32 has a plurality of slots 44 formed along a female side edge 40 and a plurality of tabs 46 extending from the opposing male edge 38. The slots 44 are configured to accept the tabs 46 of the opposing male edge 38. Preferably there is a one-to-one correspondence between the number of slots 44 and the number of tabs 46, such that each slot 44 receives one tab 46.

[0024] As best illustrated in FIGURE 2, one or more tabs 46 may be specially configured to provide a lock once assembled. For example, the middle tab 48 of FIGURE 2 is shaped as a trapezoid, with the inserting edge 50 narrower than the attached edge 52. The attached edge 52 is preferably not attached to the basket side panel 32 along its entire length and is configured to be slightly longer than the slot 44, and thus provides a “lock tab.”

[0025] Accordingly, as the lock tab 48 is inserted into its corresponding slot 44 in a cooperating side panel 32, the lock tab 48 must deform in order to be fully inserted into the corresponding slot 44, at which time, the lock 48 tab resiliently returns to its undeformed shape, and the length of the attached edge 52 inhibits unintentional removal from its slot 44. However, if desired, a user can manually manipulate the lock tab 48 and force its removal from the slot 44.

[0026] In order to provide quick assembly of the basket, it is preferred that only one tab 46 is configured as a lock tab 48; however, more than one tab 46 may be so configured. The remaining tabs 46 are preferably configured in a simple square or rectangular shape for easy insertion and subsequent removal from their corresponding slots 44. The tab corners may be rounded to allow easier manipulation and provide a modicum of safety to the user.

[0027] As shown in FIGURE 3, each tab 46 is inserted into a corresponding slot 44 on the cooperating side panel 32. As mentioned above, while only 2 side panels 32 are illustrated, the basket may be assembled with one or more side panels. It can be seen that the side panels 32 overlap and thus cooperate to provide support and increased strength to better withstand subsequent hoop stresses and bending stresses exerted on the assembled basket.

[0028] As discussed, each side panel 32 is configured with tabs 46 and slots 44, such that two side panels 32 may be connected to each other by aligning each of their respective tabs 46 and slots 44, as shown in FIGURE 4. The lock tabs 48 further allow the

assembled side panels 32 to remain assembled until the user attaches the remaining components and secures the basket in its assembled configuration. As illustrated, the assembled side panels 32 cooperate to define a continuous basket side wall.

[0029] The side panels 32 may be formed of any suitable material, such as a polymeric material which exhibits flexibility, and offers the additional benefits of allowing additives mixed in with the resin. Such additives may be in the form of plasticisers, colorant dyes, and other additives which may affect surface finish, malleability, hardness, and opacity. Such suitable materials may include, for example, polyester, polypropylene, polyvinyl chloride (PVC), and the like. The side panels may also be formed from any suitable process, such as by stamping, cutting, molding, and the like.

[0030] FIGURES 5 and 6 show one embodiment of a bottom frame 60 comprising a circumferential edge defining an annular groove 62 configured to receive the bottom edge 36 of the side panels. The bottom frame 60 further comprises a plurality of locking wedges 64 for securely attaching to the side panels 32, as will be discussed below in further detail. Preferably, one side of the bottom frame 60, either the top or the bottom, is configured with strengthening ridges 66, such as those shown in FIGURE 6. The strengthening ridges offer increased rigidity to the bottom plate such that it can maintain its shape in response to stresses exerted on it by the side panels and by any loads resulting from waste deposited within the assembled basket.

[0031] The illustrated bottom frame 60 embodiment is shaped as an oval. Of course, it should be apparent to one of ordinary skill that the bottom frame may take on any of a number of perimeter shapes. For example, the bottom frame 60 could be shaped as a circle, ellipse, octagon, or any other regular or non-regular geometric shape.

[0032] As shown in FIGURE 7, the bottom frame 60 preferably includes one or more locking wedges 64 configured to hold the side panels 32. With added reference to FIGURE 1, each side panel 32 has one or more holes 66 formed adjacent to its respective upper edge 34 and lower edge 36 for cooperation with the locking wedges 64 of the bottom frame 60. Each locking wedge 64 comprises a tab 68 configured to fit within the holes 66 of the side panels 32. Additionally, each locking wedge 64 has one or more biasing members

70 that push the side panels 32 toward the tabs 68 thereby inhibiting subsequent unintentional withdrawal of the side panels 32 from the annular groove 62 in the bottom frame 60.

[0033] In practice, once the side panels 32 are connected to one another as described above, their respective lower edges 36 are forced into the annular groove 62 of the bottom frame 60 and the holes 66 formed in the side panel lower edges 36 align with the tabs 68 of the bottom frame 60. The tabs 68 of the bottom frame 60 are captured within the holes 66 formed in the side panel lower edges 36 thus maintaining the attachment of the side panels 32 with the bottom frame 60.

[0034] The biasing tabs 70 of the bottom frame 60 serve to maintain the side panels 32 in their assembled position with respect to the tabs 68 , and further force the side panels 32 to be adjacent to the outer wall 72 defining the annular groove 62, thereby providing rigidity to the assembled basket. Moreover, the biasing members 70 extend into the annular groove 62, such that as the side panel lower edge 36 is inserted into the groove 62, the biasing members 70 deflect downward into the groove 62. Subsequent withdrawal of the side panels 32 would cause the biasing members 70 to contact the side panels 32 with greater force, thereby inhibiting unintentional withdrawal of the side panels 32 from the groove 62.

[0035] FIGURE 8 shows the partially assembled basket attached to the bottom frame 60. There is no limitation as to the number of holes and cooperating locking wedges, so long as there is a sufficient number to provide adequate structural rigidity to the assembled basket. Likewise, the number of side panels 32 may be as few as one, or as great as about eight or more. However, for convenience, two cooperating side panels 32 are preferred.

[0036] FIGURE 9 shows one embodiment of an upper ring 80 configured to be used with the side walls 32 disclosed herein. The upper ring 80 generally corresponds with the desired upper surface periphery shape of the finished basket. As such, the upper ring 80 may be shaped as desired in any regular or non regular closed geometric shape. For example, the upper ring 80 may be formed as a circle, oval, ovoid, ellipse, rectangle, polygon, or non-regular continuous band or hoop.

[0037] With reference to FIGURES 9-11, the upper ring 80 has a substantially U-shaped cross section, but may also be substantially J-shaped, N-shaped, or other desired

shape. In any case, a groove 82 is formed along the entirety of the upper ring 80 into which the side panels 32 are inserted. The upper ring 80 is further configured with a number of clips 84 designed to interact with holes 66 formed along the upper edge 34 of each side panel 32. Each upper ring clip 84 is configured with a protruding tab 86 that extends into the groove 82 and is configured to fit within the hole 66 formed in the side panel upper edge 66. Additionally, a pair of notches 88 are formed on both sides adjacent the clip 84 in a direction that is transverse to the longitudinal direction of the upper ring 80. These notches 88 allow a portion 90 of the upper ring 80 to deflect to allow entry of the side panels 32 into the groove 82. The upper ring portion 90 is then free to resiliently return to its natural position, and thus exerts a force on the side panels 32 that tends to force the side panels 32 toward the outer edge of the groove 82 thereby providing a more positive lock between the tab 86 and the holes 66 formed in the side panels 32, and increasing the surface friction between the side panels 32 and the interior of the groove 82.

[0038] The upper ring 80 generally conforms with the perimeter shape of the bottom frame 60; however, there is no such requirement. In fact, the upper ring 80 may be a different shape than the bottom frame all together. For example, the bottom frame 60 may be elliptical, while the upper ring 80 may be circular. Such versatility allows for the customization of each basket by mixing or matching the shape of the bottom frame 60 and the upper ring 80.

[0039] As with the locking wedges 64 of the bottom frame, there is no limitation on the number of clips 84, so long as the upper ring 80 is securely fastened to the side panels 32. In one embodiment, there are four locking wedges 64 that cooperate with four holes on the upper edge of the side panels. Additionally, there can be additional biasing members placed within the grooves 62,82 of the bottom frame 60 and upper ring 80, respectively, to bias the side panels 32 outwardly within the respective grooves 62,82.

[0040] Alternatively, the clips 84 may be omitted and the upper ring groove 82 can be configured with a portion having a decreased width configured to frictionally engage and hold the side panel 32 securely in the upper ring groove 82.

[0041] Preferably, the upper ring 80 and bottom frame 60 are formed of a material that is more rigid than the side panels 32, such that the upper ring 80 and bottom frame 60

force the side panels 32 to conform to the desired shape. Furthermore, the upper ring 80 and bottom frame 60 experience the hoop stresses caused by bending and forming the side panels 32 into their desired shape, and should be formed of a suitable material to withstand such stresses, such as polymers exhibiting a relatively low modulus of elasticity compared to that of the side walls 32, such as PVC, for example.

[0042] The components of the Composite Basket described herein may be stored in a disassembled, flattened state. This allows the basket components to be economically packaged, shipped, and stored. Furthermore, the materials described herein lend other advantages, both aesthetic and otherwise, such as transparency, colored translucency, lightweight, flexibility, formability to desired shapes, ability to take on surface textures, and other advantages which will become apparent to those of skill in the art.

[0043] Assembly of the basket comprises three simple steps. First, a user connects the one or more side panels 32 to each other by inserting the tabs 46 into corresponding slots 44 until the side panel 32 resembles a cylinder. Secondly, the side panel lower edges 36 are inserted into the groove 62 formed in the bottom frame 60 while aligning the holes 66 in the side panel lower edges 36 with the locking wedges 64 of the bottom frame 60 until the bottom frame tabs 68 are captured within the side panel lower edge holes 66. As the side panels 32 are inserted into the bottom frame groove 62, the locking wedges 64 will engage the holes 66 of the side panels 32 and securely hold the side panels 32 in place. Thirdly, the upper ring 80 is pushed onto the upper edge 34 of the side panels 32 such that the side panels 32 enter the upper ring groove 82. As the upper ring 80 is forced onto the side panels 32, the upper ring clips 84 will engage the side panel holes 66 and capture the same thus forming a secure connection with the side panels 32. An assembled basket is represented in FIGURE 12.

[0044] The bottom frame 60 and upper ring 80 provide suitable rigidity to allow the basket to maintain its assembled configuration, even during rough use. The basket can be subsequently disassembled, as desired, by removing the side panels 32 from the upper ring 80 and bottom frame 60. The illustrated basket thus comprises 4 components that are easily assembled and disassembled, yet provides a rigid container able to withstand considerable abuse during use.

[0045] Although this invention has been disclosed in the context of certain preferred embodiments and examples, it will be understood by those skilled in the art that the present invention extends beyond the specifically disclosed embodiments to other alternative embodiments and/or uses of the invention and obvious modifications and equivalents thereof. In addition, while a number of variations of the invention have been shown and described in detail, other modifications, which are within the scope of this invention, will be readily apparent to those of skill in the art based upon this disclosure. It is also contemplated that various combinations or subcombinations of the specific features and aspects of the embodiments may be made and still fall within the scope of the invention. Accordingly, it should be understood that various features and aspects of the disclosed embodiments can be combined with or substituted for one another in order to form varying modes of the disclosed invention. Thus, it is intended that the scope of the present invention herein disclosed should not be limited by the particular disclosed embodiments described above, but should be determined only by a fair reading of the claims that follow.